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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/764,011 | 01/17/2001 | Kevin W. Burrows | 206584 | 3590 |

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EXAMINER

FILIPCZYK, MARCIN R

ART UNIT PAPER NUMBER

2171

DATE MAILED: 03/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/764,011

Applicant(s)

BURROWS ET AL.

Examiner

Marc R Filipczyk

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— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 10-19 and 24-28 is/are rejected.
- 7) ☒ Claim(s) 6-9 and 20-23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

This is in response to application filed on January 17, 2001 in which claims 1-28 are presented for examination.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5, 8, 13, 14, 19, 22, 27 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 5 and 19, the segment "list that acts as a wrapper" is indefinite. What does the wrapper do?

— Regarding claims 8 and 22, "descendent nodes include data representing the number..." is indefinite. Where is the data stored and how is it tracked?

— Regarding claims 13(a) and 27(a), the fragment "to the left/right of a parent element" is indefinite. What is a parent element? How is it determined and allocated?

Regarding claims 14 and 28 depend from claims 13 and 27 and therefore inherit the deficiencies of those claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 10-19 and 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over "INTRODUCTION TO ALGORITHMS" by Cormen, Leiserson and Rivest (hereinafter "CLR") in view of "Indexing Large Metric Spaces for Similarity Search Queries" by Bozkaya and Tolga (hereinafter "BT").

Regarding claims 1-4, 11-18 and 25-28, CLR discloses creating and searching (page 388, CLR) a balanced binary tree using nodes and assigning values (page 386, fig. 19.4, CLR), but does not expressly teach a method for creating a binary tree from a list of elements, wherein the list includes left and right side groupings.

(Note: creating a binary balanced tree involves inserting left and right descendent nodes)

However, BT teaches indexing large metric spaces for similarity search queries (title, BT) in which binary mvp-trees are constructed (binary trees) by subdividing a list into two lists of equal cardinality at the median.

(Note: binary mvp-tree may be constructed to contain all the limitations as a binary tree, see page 9, BT)

Further, selecting a side for processing, where for example left side groupings are in preference to right side groupings was a common programming technique before the Applicant's claimed invention. Hence, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to create binary tree structures by reading and subdividing the list by use of a median as taught by BT to effectively construct a tree structure including all the elements in the list.

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Regarding claims 5 and 19, a linked list is inherent from a list relating to a structure.

Regarding claims 10 and 24, an ordered linked list is a sorted linked list which is inherent from a list that is divided by a median, hence the list must be pre-sorted.

Allowable Subject Matter

Claims 6, 7, 9, 20, 21 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 8 and 22 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art by Bozkaya Tolga and Ozsoyoglu Meral cited in the reference has been page numbered by Examiner.

The prior art made of record not relied upon is considered pertinent to applicant's disclosure. The following patent is cited to further show the state of art with respect to generating binary trees.

U.S. Patent No. 5,463,777 of Bialkowski et al.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc R Filipczyk whose telephone number is 703-305-7156.

The examiner can normally be reached on Mon-Fri, 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on 703-308-1436. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

MF
February 27, 2003


SAFET METJAHIC
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100